radial spines, which are either regularly or irregularly disposed on the surface of the spherical shell. The extreme variability and richness of form in this family is mainly due to the different size, shape, and disposition of these radial spines.

The simplest Astrosphærida are the Coscinommida, with a single spherical or polyhedral lattice-shell. To this ancestral group all other subfamilies can be opposed as "Astrosphærida composita," since their skeleton is composed of two or more concentric lattice-shells: two in the Haliommida, three in the Actinommida, four in the Cromyommida, five or more in the Caryommida. In these four subfamilies the concentric shells are all simple (not spongy) fenestrated spheres or endospherical polyhedra. In the sixth subfamily, the Spongiommida, the shell is wholly or partially composed of spongy irregular wicker-work, with or without a medullary shell in the centre.

*The Number of the Radial Spines* in the Astrosphærida is extremely variable, and ranges from eight to forty or more; in many cases more than one hundred. Often each nodal-point of the network develops on the shell surface one spine. Still more frequently the number of the spines is less than that of the nodal-points. In all concentric Astrosphærida, having two or more concentrical shells, we can distinguish "primary spines," as outer prolongations of the inner radial beams connecting the shells, and "secondary spines," developed only on the outer surface of the shell. Naturally the former are of much greater importance than the latter. But we can also often distinguish among the latter larger "main spines" and smaller "by-spines," the latter commonly much more numerous than the former.

*The Disposition of the Radial Spines*, either regular or irregular, is a subject of great morphological interest, and remains to be exhausted by further observations. The following cases of regular disposition have been observed by me—(A) eight spines, opposite in pairs in four axes corresponding to the four diagonal axes of a cube; (B) nine spines, regularly disposed at equal distances (?) (not opposed in pairs); (C) ten spines, disposed at equal distances (?); (D) twelve spines, regularly disposed, corresponding to the twelve corners of the regular icosahedron; (E) fourteen spines, quite regularly disposed (six corresponding to the three axes of a regular octahedron, eight to the central points of its eight faces); (F) sixteen spines, regularly disposed (?); (G) twenty spines (very common !), either disposed in the same manner (after the law of Johannes Müller) as in the ACANTHARIA (?), or corresponding to the twenty corners of the regular or pentagonal dodecahedron, or disposed in the same manner as in many Larcoidea (Tholonida, &c., to be described afterwards); (H) twenty-four spines, regularly disposed (?); (I) thirty-two spines, quite regularly disposed (twenty corresponding to the twenty corners of the regular dodecahedron, twelve to the central points of its twelve faces); (K) forty spines, nearly regularly (or quite symmetrically ?) disposed. If the number of the spines amounts to more than forty, it is as a rule impossible to determine their regular disposition in a satisfactory manner.